

KENTUCKY DEPARTMENT OF EDUCATION

STAFF NOTE

Review Item:

Update from the Committee for Mathematics Achievement and the Kentucky Center for Mathematics

Applicable Statute or Regulation:

KRS.158.842 (Committee for Mathematics Achievement); KRS158.840; KRS 158.844; KRS 164.525; KRS 158.6451

History/Background:

Existing Policy. The purpose of this review item is to provide the Kentucky Board of Education (KBE) with an update of the work of the Committee for Mathematics Achievement and the Kentucky Center for Mathematics. Dr. Bill Bush from the University of Louisville and chair of the Committee for Mathematics Achievement and Dr. Linda Sheffield, Executive Director of the Center for Mathematics, will present on the work of these entities to the KBE at the October 2006 meeting. This is the first of a series of three updates on mathematics that the KBE will receive over the course of the October 2006, December 2006 and January 2007 KBE meetings.

Committee for Mathematics Achievement

Recognizing that proficiency in mathematics is one of the gateway skills Kentucky students must attain in order to achieve the goals established for all students, the Kentucky Legislature passed House Bill 93 in the 2005 session to support mathematics teaching and learning in Kentucky. One of the components for House Bill 93 was to establish a Committee for Mathematics Achievement (KRS.158.842). The Committee for Mathematics Achievement was appointed in May 2005. The committee is composed of 25 members as outlined in KRS 158.842(4) (See Attachment A). Two primary purposes of this committee are to develop “a multifaceted strategic plan to improve student achievement in mathematics at all levels of schooling, prekindergarten through postsecondary and adult” and to provide “advice to policymakers in the development of statewide policies in the identification and allocation of resources to improve mathematics achievement”. Members of the committee will serve a one to three year term. The executive director of the Center for Mathematics, Dr. Linda Sheffield, is now included on the Committee for Mathematics Achievement to make a total of 26 current members. Dr. Bill Bush from the University of Louisville was appointed as temporary chair of the committee, later elected chairperson of the committee by a majority vote and will continue to serve as chair of the Committee for Mathematics Achievement until January 2007 at which time a new chair will be elected.

The committee identified four priority areas they felt should be addressed in the strategic plan. These four areas are:

- Create an environment for supporting high-quality mathematics instruction by enhancing the beliefs and attitudes of students, teachers, instructors, faculty, administrators, parents and community members about mathematics.
- Enhance Pre-K through 16 teachers' mathematics knowledge and ability to differentiate instruction to meet the needs of all students.
- Enhance the awareness and knowledge of Pre-K-12 teachers, adult educators, and postsecondary regarding effective mathematics resources, including curriculum materials, intervention and remediation programs and technology, and provide them the support necessary to use the resources effectively.
- Increase the number of Kentucky teachers with expertise in mathematics and mathematics teaching through aggressive recruitment programs and support-based retention strategies.

The Committee for Mathematics Achievement presented the draft strategic plan to improve student achievement in mathematics to the Education Assessment and Accountability Review Subcommittee of the Kentucky General Assembly in September 2005. (Attachment B). The plan provides brief rationales for each need, recommends particular strategies that will lead to improved mathematics performance, identifies specific groups, agencies and organizations to implement the strategies, and offers a tentative timeline for implementation. The Committee for Mathematics Achievement is to present a final report of committee activities to the Interim Joint Committee on Education and the Legislative Research Commission by December 1, 2006. This report will also be provided to the Kentucky Board of Education once completed.

The committee was also charged with establishing criteria to be used by schools in the selection of primary mathematics intervention programs and diagnostic assessments. After establishing criteria, reviewing programs, and hearing presentations from primary mathematics intervention programs, the committee recommended Number Worlds and Math Recovery as meeting research-based criteria for successful interventions. Additionally, the committee made recommendations to the Kentucky Department of Education related to the Mathematics Achievement Fund Grants (KRS 158.844) on criteria to define eligible mathematics achievement grant recipients, the application and review process and the responsibilities of the schools and districts receiving the grants (Attachment C).

A major focus of improving student proficiency in mathematics is making sure students have teachers who know their content deeply and how to deliver instruction to facilitate learning and applying mathematics. The Committee for Mathematics Achievement, in collaboration with the Kentucky Center for Mathematics and other agencies, designed criteria for statewide professional development that included summer mathematics institutes at universities, follow-up and school based support to prepare mathematics

coaches and mentors. The Committee for Mathematics Achievement also designed criteria for a professional development program to train mathematics intervention teachers working in schools that are awarded a Mathematics Achievement Grant.

Center for Mathematics

House Bill 93 also established the Center for Mathematics (KRS 164.525). In January 2006 the Council on Postsecondary Education selected Northern Kentucky University as the location for the Kentucky Center for Mathematics. Dr. Linda Sheffield is serving as the Executive Director of the Center for Mathematics.

The purpose of the Center for Mathematics (KRS 164.525) is to:

- Advise the Kentucky Department of Education and Kentucky Board of Education regarding early mathematics content, diagnostic assessment practices and intervention programs; cost and effectiveness of intervention programs; coaching and mentoring models and issues relating to mathematics programs;
- Act as a clearinghouse for information about professional development programs around mathematics intervention programs and diagnostic assessment, coaching and mentoring as well as other instructional strategies;
- Develop, in collaboration with other public and private postsecondary institutions, teachers' mathematical knowledge and help improve students' mathematical concepts, thinking, problem solving and skills; and
- Provide teacher training to develop teacher leaders and teaching specialists in primary programs who have skills in mathematics diagnostic assessment and intervention services.

Goals for the Center for Mathematics, as set by the Committee for Mathematics, are:

1. Enhance knowledge of and access to exemplary mathematics research and resources.
2. Create an environment that is conducive to building mathematics capacity.
3. Expand teachers' mathematical content knowledge, pedagogical skills and knowledge, and enjoyment of teaching mathematics.
4. Increase the number and the retention rate of Kentucky teachers with expertise in mathematics and mathematics teaching.

Recent accomplishments of the Kentucky Center for Mathematics include:

- a) The center has established a web page (www.kentuckymathematics.org) to disseminate information on professional development and teaching resources. The web site is a clearinghouse for information on careers in mathematics; resources for parents, teachers and students; and training opportunities for teachers and information on mathematics organizations.
- b) In collaboration with the Committee for Mathematics Achievement, the Kentucky Department of Education, the Council on Postsecondary Education, and Kentucky Universities and other institutions, the Center for Mathematics designed professional development for forty-five (45) mathematics intervention teachers

from the schools that were awarded the Mathematics Achievement Grants. The Center, in collaboration with the above organizations, also designed and implemented professional development for sixty-seven (67) mathematics coaches and mentors. On-going support to coaches/mentors and intervention teachers in face-to-face meetings and through electronic meetings is provided throughout the school year.

- c) The Center has designed an evaluation plan and arranged for data collection and data management for the evaluation of the intervention programs. Researchers will also be assessing teachers' beliefs about and attitudes towards mathematics as well as their mathematical content knowledge and their pedagogical content knowledge. Other researchers will also be looking at the fidelity of the intervention programs and the validity of the assessments.

Impact on Getting to Proficiency:

Success in mathematics is a key to all students reaching proficiency and a gateway to future success in postsecondary education and the workplace.

Contact Person:

Starr Lewis, Associate Commissioner
Office of Teaching and Learning
502-564-2106
StarrLewis@education.gov

Deputy Commissioner

Commissioner of Education

Date:

October 2006